



October 1, 2004

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re/ Application of David Brayden
Application No. 09/386,709
Filed August 31, 1999

Examiner: J.E. Graser
Art Unit: 1645
Confirmation No. 1709

Oral Vaccine Compositions

Attorney Docket No. P26,488-A USA

DECLARATION UNDER 37 CFR §1.132

Sir:

I, David J. Brayden, hereby declare as follows:

1. I am a citizen of Ireland.
2. I am the sole inventor of the subject matter claimed in the above-identified patent application, U.S. Application No. 09/386,709 (hereafter "the '709 application").
3. I have reviewed the Office Action, dated May 4, 2004, received from the United States Patent and Trademark Office.
3. This declaration is to establish that the disclosure of the '709 application is sufficiently enabling to one of ordinary skill in the art in regard to methods of the '709

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application wherein at least a first and a second subpopulation of micro(nano)particles are administered to a subject.

4. Examples 7 and 8 of the '709 application disclose the results of experiments wherein two subpopulations of micro(nano)particles, each subpopulation containing a different antigen, are administered to balb/c mice.

5. Page 20, lines 23 to 24, of the '709 application (Example 7) recites: "PTd-FHA-PLG (100 µg of each of PTd and FHA entrapped in PLGA microparticles)". This phrase refers to a first subpopulation of 100 µg of PTd entrapped in PLGA microparticles and a second subpopulation of 100 µg of FHA entrapped in PLGA microparticles.

6. Examples 1 to 4 of the '709 application all disclose preparation of micro(nano)particles loaded with only a single antigen. Example 1 (page 10, line 1, to page 11, line 29) is directed to KLH-loaded microparticles. Example 2 (page 12, line 1, to page 13, line 9) is directed to PTd-loaded microparticles. Example 3 (page 13, line 10, to page 14, line 3) is directed to FHA-loaded microparticles. Example 4 (page 14, line 4, to page 17, line 5) is directed to PTd or FHA loaded nanoparticles.

7. Page 15, lines 18 to 20, of the '709 application (Example 4) recites (emphasis added) "A PTd (168 µg/ml) or FHA (264 µg/ml) solution was first dispersed in a PVA (mwt = 13000-23000; 98% hydrolysis) solution while stirring at 400 rpm with the temperature set at 25°C." This passage indicates that the PTd and FHA solutions were used to generate two separate batches of antigen-loaded nanoparticles and not a single batch of nanoparticles loaded with both antigens. In further support of this assertion, page 15, line 18, to page 17, line 5, describes the characterizations of these two separate batches (1.2% PTd and 1.0% FHA).

8. Although Examples 1 to 4 of the '709 application could be adapted to loading more than one antigen into a micro(nano)particle (see page 5, lines 28 to 29), all of the antigen-loaded micro(nano)particles generated by Examples 1 to 4 comprise only single antigens encapsulated in micro(nano)particles. Accordingly, the passage "PTd-FHA-PLG (100 µg of each of PTd and FHA entrapped in PLGA microparticles" in Example 7, should be interpreted to a first subpopulation of 100 µg of PTd entrapped in PLGA microparticles and a second subpopulation of 100 µg of FHA entrapped in PLGA microparticles.

9. Page 21, lines 17 to 18, of the '709 application (Example 8) recites: "Treatment 2:PTd + FHA in PLGA (blend of 100 µg of each of antigen entrapped in nanoparticles according to Example 4)". As noted above, the "antigen entrapped in nanoparticles according to Example 4" refers to PTd *or* FHA entrapped in nanoparticles. Specifically, the "antigen entrapped in nanoparticles according to Example 4" would be batches 1.2% PTd and 1.0% FHA described on page 16 in Tables 3 and 4. Accordingly, as the nanoparticles used in Example 8 are the nanoparticles of Example 4, and the nanoparticles of Example 4 are each loaded with only a single antigen, then the nanoparticles of Example 8 must also only be loaded with a single antigen. Thus, Example 8 discloses two subpopulations of nanoparticles each containing a different antigen.

10. Page 24, lines 11 to 12, of the '709 application (Example 8) recites (emphasis added): "They reveal a high level of protection in animals orally immunised with a blend of nanoparticles entrapping PTd and FHA respectively." The use of the term "respectively" in this sentence indicates nanoparticles entrapping either PTd *or* FHA, not PTd *and* FHA. Thus, one of ordinary skill in the art would recognize that Example 8 of the '709 application discloses two subpopulations of nanoparticles each containing a different antigen.

II. As the person signing below:

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful statements may jeopardize the validity of the application or any patent issued thereon.

Inventor: David J. Brayden

Signature: David Brayden Date October 3rd, 2004

Residence: Dublin, Ireland

Citizenship: Ireland

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